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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM B. BROWN, MARK ALLEN GRUBBS,
GERALD FRANCIS McBREARTY, and WU ZHENG

Appeal 2008-005092
Application 10/099,777
Technology Center 2100

Decided: February 23, 2010

Before LANCE LEONARD BARRY, JOHN A. JEFFERY, and
ST. JOHN COURTENAY III, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-20. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

STATEMENT OF THE CASE

Appellants invented a method for exporting file systems without first mounting them. To this end, an "extended attribute file" is used to provide

all information needed to export a file system. Therefore, on startup, a server need only refer to these extended attribute files to obtain the requisite information for file system export. *See generally* Spec. 4; Fig. 9. Claim 1 is illustrative:

> 1. A method of exporting file systems comprising the steps of:
>
> consulting a file associated with a mount point of a mounted file system to retrieve needed information to export the file systems, the mount point being the point at which the file systems are mounted on a computer system; and
>
> exporting the file systems.

The Examiner relies on the following as evidence of unpatentability:

Vahalia	US 6,275,953 B1	Aug. 14, 2001

THE REJECTION

The Examiner rejected claims 1-20 under 35 U.S.C. § 102(a)[1] as anticipated by Vahalia. Ans. 2-4.[2]

CLAIM GROUPING

Appellants argue the following claim groupings separately: (1) claims 1, 6, 11, and 16; (2) claims 3, 8, 13, and 18; (3) claims 4, 9, 14, and 19; and (4) claims 5, 10, 15, and 20. *See* App. Br. 4-9. Accordingly, we select

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[1] Although the Examiner rejected the claims under § 102(a) over Vahalia, this reference also qualifies as prior art under § 102(e).

[2] Throughout this opinion, we refer to (1) the Appeal Brief filed August 27, 2007; (2) the Examiner's Answer mailed November 13, 2007; and (3) the Reply Brief filed January 14, 2008.

claims 1 and 3 as representative of groups (1) and (2), respectively. Although we consider the claims of claims groups (3) and (4) together, claims 19 and 20 are separately treated. We also group claims 2, 7, 12, and 17 in group (1) since they were not separately argued. *See* 37 C.F.R. § 41.37(c)(1)(vii).

CONTENTIONS

Regarding representative claim 1, the Examiner finds that Vahalia discloses a method of exporting file systems including (1) consulting a file associated with a mount point by searching a directory tree structure for a particular file, and (2) exporting the file systems to clients. Ans. 3-5.

Appellants argue that Vahalia does not consult a file associated with a mount point as claimed, but rather looks up a requested file in a directory. App. Br. 6-7. Appellants add that the directory or file is not associated with a mount point, but rather an access-granting computer system in a cluster to determine which computer system grants access to the file system. Reply Br. 3.

Appellants also contend that Vahalia does not export the file systems as claimed, but rather exports file requests to remote systems. App. Br. 7; Reply Br. 4.

Regarding claim 3, the Examiner contends that since Vahalia's data movers have local file directories that can reference other storage, the file systems are exported without first being mounted as claimed. Ans. 3-4. Appellants, however, argue that Vahalia does not disclose this feature. App. Br. 8.

Regarding claims 19 and 20, Appellants argue that Vahalia does not teach that the file is an extended attribute file, let alone that each mount point has such a file as claimed. App. Br. 8-9.

The issues before us, then, are as follows:

ISSUES

Under § 102, have Appellants shown that the Examiner erred by finding that Vahalia discloses:

(1)(a) consulting a file associated with a mount point of a mounted file system to retrieve needed information to export file systems, and (b) exporting file systems as recited in claim 1?

(2) exporting file systems without first being mounted as recited in claim 3?

(3) an extended attribute file as recited in claim 19?

(4) that each mount point has an extended attribute file as recited in claim 20?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Vahalia

1. Vahalia discloses a network file server (NFS) 20 for servicing clients in a data network including (1) a cached disk storage subsystem 23, and (2) multiple "data mover" computers 21 ("data movers") linking the cached disk storage subsystem and network 25. Each data mover computer

maintains a local cache of file access information and an index indicating the files that the data mover computer can directly access. Vahalia, col. 2, ll. 43-58; col. 5, ll. 16-25; col. 10, l. 55 – col. 12, l. 50; Figs. 1, 2, 7.

2. Each file is assigned to a respective data mover which "owns" that file by virtue of its primary relationship to the file. Therefore, if a data mover receives a request for such a file, it processes the request and accesses the file in the cached disk storage subsystem. But if a data mover receives a request for a file that it does not "own" (i.e., it is not the primary data mover for that file), it forwards the access request to the appropriate primary data mover to satisfy the request. Vahalia, col. 12, ll. 1-15; col. 13, ll. 4-26.

3. Figure 7 shows a data access model of network file server 20 when programmed for read/write sharing of file systems by clusters of data movers 21 and file systems 80 in the server. Vahalia, col. 12, ll. 24-26; Fig. 7.

4. A file system is simply a definite set of files. Files are indexed in a file directory organized as a tree, and each file system is identified by a node in the tree. Vahalia, col. 12, ll. 26-31; Fig. 7.

5. Clients can access each file system in a cluster directly or via another server at multiple access points (i.e., "mount points"). Vahalia, col. 12, l. 67 – col. 13, l. 3.

6. "Mount points" are nodes on a path through a directory tree that reference remote file systems. Vahalia, col. 17, ll. 18-23.

7. Each data mover in a cluster has (1) a directory of the file systems in the cluster, and (2) a database of the mount points for the file systems and the data mover owners of the file systems. When any data mover in a cluster receives an access request, it checks the database. If the file system is a

read/write file system having a different primary data mover, the data mover forwards the client request to the primary data mover. Vahalia, col. 13, ll. 19-26.

8. A data mover determines that a file for which access is requested is in a remote file system if a mount point is reached during file lookup as the filename is traversed from the root of the directory tree to the file to be accessed. In this circumstance, the data mover sends the request for export to the remote file system corresponding to the mount point. Vahalia, col. 13, ll. 40-58; col. 17, ll. 15-32; col. 19, ll. 36-53; Fig. 8 (steps 94-95); Fig. 16 (steps 171-72).

9. If a data mover owns the file system, it sends the request to an NFS thread to verify that the file system is exported to the client. The data mover then processes the request (e.g., reads or writes data to the file) and sends a reply to the client. Vahalia, col. 14, ll. 11-15; col. 20, ll. 27-29; Fig. 8 (steps 98-99); Fig. 17 (step 180).

Appellants' Disclosure

10. "An extended attribute is additional non-user data that is associated with a file system object." Spec. 14:25-26.

11. "The extended attribute is nothing but a file that is linked to directory dir1. The extended attribute file contains all the information needed to export the pathname of the file system B to clients." Spec. 15:6-9.

PRINCIPLES OF LAW

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp. v. Appl. Dig. Data Sys., Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983).

"Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted).

ANALYSIS

Claims 1, 2, 6, 7, 11, 12, 16, and 17

Based on the record before us, we find no error in the Examiner's anticipation rejection of representative claim 1. First, claim 1 broadly recites consulting a file *associated with* a mount point of a mounted file system. Given the scope and breadth of this limitation, we see no error in the Examiner's equating Vahalia's file lookup associated with the directory tree structure (Ans. 5) as corresponding to this limitation.

When a data mover in Vahalia receives an access request, it (1) checks a database of "mount points" and data mover "owners" of associated file systems, and (2) forwards the request to the appropriate primary data mover if necessary. FF 2, 7. Specifically, the data mover determines that a requested file is in a remote file system if a mount point is reached during file lookup as the filename is traversed from the root of the directory tree to

the file to be accessed. FF 8. Since this file is at least associated with a "mount point" (i.e., nodes on a directory tree path that reference remote file systems) (FF 4-6), it is therefore "consulted" via this search to retrieve needed information to export file systems as claimed.

Although a data mover sends requests to remote file systems corresponding to mount points (FF 8), the data mover also sends requests to server threads to verify that *file systems are exported to the client* if a data mover "owns" the file system (i.e., it is the primary data mover for that system). FF 2, 9; emphasis added. Notably, nothing in claim 1 precludes this file system export to the client, notwithstanding the fact that requests are exported to other data movers in certain circumstances. Moreover, even if this file system export occurs only when a data mover "owns" the file system, such a determination is made, at least in part, via information obtained via the file lookup procedure in the directory tree noted above (i.e., "consulting" the associated file). *See* FF 8-9.

We are therefore not persuaded that the Examiner erred in rejecting representative claim 1, and claims 2, 6, 7, 11, 12, 16, and 17 which fall with claim 1.

Claims 3, 8, 13, and 18

We will not, however, sustain the Examiner's rejection of claim 3 which calls for exporting the file systems without first being mounted. Without citing particular passages from Vahalia, the Examiner merely summarily asserts that since Vahalia's data movers have local file directories that can reference other storage, the file systems are exported without first being mounted as claimed. Ans. 3-4.

Not only is this conclusory assertion merely speculative, Vahalia actually suggests just the opposite: that file systems are exported to the client if a data mover "owns" the file system (i.e., it is the primary data mover for that system). FF 2, 9. In short, we fail to see how these file systems can be exported without being mounted. Nor has the Examiner shown that these file systems are *necessarily* exported without being mounted—a crucial requirement for anticipation. *See Robertson*, 169 F.3d at 745.

We are therefore persuaded that the Examiner erred in rejecting claim 3, and claims 8, 13, and 18 which recite commensurate limitations.

Claims 4, 5, 9, 10, 14, 15, 19, and 20

Since claims 4, 5, 9, 10, 14, and 15 depend from either claims 3, 8, or 13, we will not sustain the Examiner's rejection of these claims for the reasons indicated previously regarding claims 3, 8, and 13.

Claims 19 and 20, however, depend from claim 16 and therefore do not recite exporting the file systems without first being mounted (which is recited in claim 18). We therefore treat these claims separately.

Claim 19 recites that the file is an extended attribute file, and claim 20 recites that each mount point has such a file. For both claims, the Examiner finds that Vahalia's teaching that nodes that reference other nodes fully meets an "extended attribute file" in light of the Specification. Ans. 4.

According to Appellants' Specification, "[a]n extended attribute is additional non-user data that is associated with a file system object." FF 10. Appellants' Specification further notes that "[t]he extended attribute is

nothing but a file that is linked to directory dir1. The extended attribute file contains all the information needed to export the pathname of the file system B to clients." FF 11.

Based on this description, we are not persuaded of error in the Examiner's interpretation that nodes associated with Vahalia's mount points constitute an "extended attribute file" as claimed. As Vahalia indicates, mount points are nodes on a path through a directory tree that reference remote file systems. FF 6. And if a mount point is reached during file lookup as a filename is traversed from the root of the directory tree to the file to be accessed, the data mover sends the request for export to the remote file system corresponding to the mount point. FF 8.

We see no reason why these nodes associated with mount points cannot be considered "extended attribute files," particularly since they include data that references remote file systems and therefore contain pertinent information needed to export file systems as noted previously. Nor have Appellants explained why such nodes do not constitute "extended attribute files" apart from merely asserting that Vahalia fails to teach this limitation. *See* App. Br. 8-9. Such conclusory assertions fall well short of persuasively rebutting the Examiner's conclusion.

We are therefore not persuaded that the Examiner erred in rejecting claims 19 and 20.

CONCLUSION

Appellants have not shown that the Examiner erred in rejecting claims 1, 2, 6, 7, 11, 12, 16, 17, 19, and 20 under § 102. Appellants, however, have shown that the Examiner erred in rejecting claims 3-5, 8-10, 13-15, and 18 under § 102.

ORDER

The Examiner's decision rejecting claims 1-20 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

Pgc/nhl

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